

Work Order ID 124887

124887

Thursday, September 25, 2014 1:08:51 PM

Page 1

Item ID: D407-667-105RLC

Accept

N9000040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Fwd Crosstube - High 407

Start Date: 9/25/2014 Start Qty: 1.00 *1*

Cust Item ID:

Required Date: 9/25/2014 Req'd Qty: 1.00 *1*

Customer:

Reference:

Approvals: Process Plan: MLJ Date: 14-09-25 Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start *NR1*
Stop *NR2*

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|

| Draw Nbr | Revision Nbr |
|--------------|--------------|
| D407-667-145 | Rev C (DEO) |
| DSI9565 | A |
| DSI9628 | A |

MLJ

100 Document Control
DOCUMENT CONTROL

0.00

100

DC

Memo 0.00

OCT 22 2014

DAS
06
9-83

MLJ 14-10-21

Doc.Control -USB or Paperwork

Photocopy bluefile and create labels as per PPP D407-667-105 CHG005

110

110

Packaging

Packaging

Packaging

Memo

0.00

0.00

MLJ 14-09-30

Work Order ID 124887***124887***

Page 2

Thursday, September 25, 2014 1:08:51 PM

Item ID: D407-667-105RLC

Accept

N900040100Setup Start ***NS1***

Revision ID:

Item Name: Fwd Crosstube - High 407

Stop ***NS2***

Start Date: 9/25/2014 Start Qty: 1.00

1

Cust Item ID:

Required Date: 9/25/2014 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***Stop ***NR2***

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|

120

0.00

120

BENDING MACHINE - CROSSTUBES

CNC Bend 2

Memo

0.00

CNC Alpha 160 Bender

Bend tube as per Dwg D407-667-145 using CNC bender program 407-fw

TW 14-09-30

130

QC15- Crosstube Dimensional Check

0.00

130

QC

Memo

0.00

Quality Control

DAS
03
8-89

DP 14-10-1

Work Order ID 124887

Thursday, September 25, 2014 1:08:51 PM

124887

Page 3

Item ID: D407-667-105RLC

Accept

N900040100

Setup Start

NS1

Revision ID:

Item Name: Fwd Crosstube - High 407

Stop

NS2

Start Date: 9/25/2014 Start Qty: 1.00

1

Cust Item ID:

Required Date: 9/25/2014 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start

NR1

Stop

NR2

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID Tool # Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

140

140

Crosstubes

Crosstubes

Crosstubes

Memo

0.00

0.00

BL/

DAS
46
9-89

14-10-02

***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING*****
VERIFIED BY: *****

1- Drill holes & ream using drill Jig DT8541 & DT8542 as per Dwg D407-667-145. Drill all (3) top holes. Holes facing inboard.

***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING*****
VERIFIED BY: *****

2- Drill Fwd rivet holes using drill Jig DT8787 fwd as per Dwg D407-667-145.
Note: Fwd side has 3x top holes. Facing inboard.

3- C'sink holes as per Dwg D407-667-145. Allow rivet to sit below surface to compensate for paint.

4- Flip tube and switch drilling Jigs from right to left, left to right. Locate Jigs off existing holes using "T" pins. Drill ONLY 2 top holes ONLY plug most bottom holes to prevent accidental drilling.

***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING*****
VERIFIED BY: *****

5- Drill holes and ream using drill Jig DT8541 & DT8542 as per Dwg D407-667-145. Drill only the top (2) holes.

***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING*****
VERIFIED BY: *****

Work Order ID 124887

124887

Thursday, September 25, 2014 1:08:51 PM

Page 4

Item ID: D407-667-105RLC Accept ***N1900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: Fwd Crosstube - High 407
 Start Date: 9/25/2014 Start Qty: 1.00 ***1*** Cust Item ID:
 Required Date: 9/25/2014 Req'd Qty: 1.00 ***1*** Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|--------------------------------|--|----------------------|---------|--------|--------------|-------------------|---------------|-------------------|----------------|
| | 6- Drill Aft rivet holes using drill Jig DT8787 aft as per Dwg D407-667-145. | | | | | | | | |
| | 7- C'sink holes as per Dwg D407-667-145. Allow rivet to sit below surface to compensate for paint. | | | | | | | | |
| | 8- Scribe part # and batch # using vibrating stylus as per Dwg D407-667-145 Inside of Cuff (Do not engrave on outside of tube) | | | | | | | | |
| | 9- *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D407-667-145 | | | | | | | | |
| | | | | | | DAS 46 9-89 | 14/10/02 | | |
| 150 | QC5- Inspect part completeness to step on W/O | 0.00 | | | | | | | |
| *150* | | | | | | | | | |
| QC | Memo | 0.00 | | | | | | | |
| Quality Control | *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** | | | | | | | | |
| | | | | | | | | DAS 49 9-89 | 14/10/06 |
| 160 | | 0.00 | | | | | | | |
| *160* | | | | | | | | | |
| HandFXtube | Memo | 0.00 | | | | | | DAS 41 9-89 | 14-10-6 |
| Hand Finishing Crosstubes | *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** | | | | | | | | |
| | 1-CLEAN CROSSTUBE WITH WASH'N WIPE | | | | | | | | |

Work Order ID 124887

Thursday, September 25, 2014 1:08:51 PM

124887

Page 5

Item ID: D407-667-105RLC Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Fwd Crosstube - High 407
Start Date: 9/25/2014 Start Qty: 1.00 ***1*** Cust Item ID:
Required Date: 9/25/2014 Req'd Qty: 1.00 ***1*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|--------------------------------|---|----------------------|---------|--------|--------------|---------------|---------------|------------------|--|
| 180 | Outsource process - NDT per QSI038 4.1 | 0.00 | | | | | | | |
| *180* | | | | | | | | | |
| Outsource2 | Memo | 0.00 | | | | | | | |
| Outsource process - NDT | *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** OUTSIDE SERVICE -CROSSTUBES Liquid Penetrant Inspection as per QSI 038 Or Issue P/O: <u>2038</u> LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order | | | | | | | | <u>CL 14/10/07</u> @ |
| 190 | Packaging | 0.00 | | | | | | | |
| *190* | | | | | | | | | |
| Packaging | Memo | 0.00 | | | | | | | |
| Packaging | *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Inspect for transit damage Ensure copy of NDT results attached to work order. | | | | | | | | <u>1x</u> <u>SP14-10-8</u> |
| 200 | QC5- Inspect part completeness to step on W/O | 0.00 | | | | | | | |
| *200* | | | | | | | | | |
| QC | Memo | 0.00 | | | | | | | |
| Quality Control | *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Inspect for damage & ensure results are as per Dwg D206-667-145 | | | | | | | | <u>1</u> <u>DAS 38 9-89</u> <u>14-10-8</u> |

Work Order ID 124887***124887***

Page 6

Thursday, September 25, 2014 1:08:51 PM

Item ID: D407-667-105RLC

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Fwd Crosstube - High 407

Start Date: 9/25/2014 Start Qty: 1.00

1

Cust Item ID:

Required Date: 9/25/2014 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***Stop ***NR2***

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|

204

204

HandFXtube

Hand Finishing Crosstubes

Memo

0.00

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

1- PRESSURE WASH AND THEN USE WASH'N WIPE TO CLEAN
CROSSTUBE BEFORE CHEMICAL CONVERSION

BL

14-10-08

206

206

QC

Quality Control

QC7-Inspect Chemical Conversion Coat

0.00

Memo

0.00

*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

1

DAS

38

9-86

14-10-8

Work Order ID 124887

124887

Thursday, September 25, 2014 1:08:51 PM

Page 7

Item ID: D407-667-105RLC Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Fwd Crosstube - High 407
Start Date: 9/25/2014 Start Qty: 1.00 *1* Cust Item ID:
Required Date: 9/25/2014 Req'd Qty: 1.00 *1* Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|--------------------------------|---|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
| 210 | SprayPaint | 0.00 | | | | | | | |
| *210* | | | | | | | | | |
| SprayPaint | Memo | 0.00 | | | | | | | |
| Spray Painting | *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** | | | | | | | | |
| | ***MASK AREA RPIOR TO PAINTING AS PER DWG AND DEO*** | | | | | | | | |
| | 1-Prime inside and outside crosstube as per QSI 005 4.2 | | | | | | | | |
| | 2-Paint outside crosstube with White Imron as per QSI 005 4.2 | | | | | | | | |
| | PRIME BATCH: <u>130128</u> | | | | | | | | |
| | Start Time: <u>11:00</u> | | | | | | | | |
| | Finish Time: <u>11:30</u> | | | | | | | | |
| | PAINT BATCH: <u>129977</u> | | | | | | | | |
| | Start Time: <u>4:00</u> | | | | | | | | |
| | Finish Time: <u>4:30</u> | | | | | | | | |
| 220 | QC14- Inspect Spray Paint | 0.00 | | | | | | | |
| *220* | | | | | | | | | |
| QC | Memo | 0.00 | | | | | | | |
| Quality Control | Then, Wrap in plastic bag to protect from scratches | | | | | | | | |

DAS
51
9-29

Thursday, September 25, 2014 1:08:51 PM

Page 8

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|--------------------------------|--|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
| 230 | | 0.00 | | | | | | | |
| *230* | Crosstubes | | | | | | | | DAS 41 |
| Crosstubes | Memo | 0.00 | | | | 1 | | | 9-89 |
| Crosstubes | | | | | | | | | 14-10-9 |
| | INSTALL GROUNDING CLAMP AND SEAL WITH SIKAFLEX AS PER DWG AND DEO A/R SIKAFLEX BATCH: <u>130227</u> <i>exp 2/15</i> 1-Abrade mating surfaces of support and crosstube with 180 grit sandpaper, clean the area with MEK or equivalent as per dwg 2-Install supports with Proseal 890 per D407-667-145 (DEO) and QSI 015 A/R Proseal 890 Batch: <u>130090</u> EXP: <u>1/15</u> 3-Install supports clamps Using Dt9565 as per Dwg D407-667-145 (DEO),Torque to 80-100 IN-LBS. PROSEAL CURE TIME 72 HOURS: Start: <u>14-10-9</u> Finish: <u>14-10-12</u> 4-Install nut plates as per Dwg D407-667-145. Touch-up rivet heads with Imron paint. | | | | | | | | |

Work Order ID 124887***124887***

Page 9

Item ID: D407-667-105RLC

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Fwd Crosstube - High 407

Start Date: 9/25/2014 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 9/25/2014 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***
Stop ***NR2***

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|--------------------------------|--|----------------------|---------|--------|--------------|---------------|---------------|------------------|-------------------|
| 240 | QC5- Inspect part completeness to step on W/O | 0.00 | | | | | | | |
| *240* | | | | | | | | | |
| QC | Memo | 0.00 | | | | | | | DAS 38 9-89 |
| Quality Control | ***RE-CHECK TORCQUE ON CLAMP AFTER PROSEAL HAS CURED FOR 72HOURS AS PER DWG.*** | | | | | | | | |
| | ***VERIFY RESISTANCE AS PER NOTE 18 AND DWG DEO*** | | | | | | | | DAS 51 9-89 |
| 250 | Pick Kit | 0.00 | | | | | | | |
| *250* | | | | | | | | | |
| Packaging | Memo | 0.00 | | | | | | | |
| Packaging | | | | | | | | | |
| 260 | QC4- 100% Inspect kits for completeness | 0.00 | | | | | | | |
| *260* | | | | | | | | | |
| QC | Memo | 0.00 | | | | | | | |
| Quality Control | | | | | | | | | |

OCT 2 2 2014

DAS
06
9-89

/L

DAS
28
9-89

OCT 2 1 2014

Work Order ID 124887***124887***

Page 10

Thursday, September 25, 2014 1:08:51 PM

Item ID: D407-667-105RLC

Accept

N19000040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Fwd Crosstube - High 407

Start Date: 9/25/2014 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 9/25/2014 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***Stop ***NR2***

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|--------------------------------|--|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
| 270 | | 0.00 | | | | | | | |
| *270* | Packaging | | | | | | | | |
| Packaging | Memo | 0.00 | | | | | | | |
| Packaging | Identify and pack for shipping as per PPP D407-667-105 | | | | | | | | |
| | Location: _____ | | | | | | | | |
| | PPP Rev: _____ | | | | | | | | |
| | | <i>Ship off</i> | | | | | | | |
| 280 | | | | | | | | | |
| *280* | QC21 - Final Inspection - Work Order Release | 0.00 | | | | | | | |
| QC | | | | | | | | | |
| Quality Control | Memo | 0.00 | | | | | | | |

OCT 27 2014 *MLJ*JAS
03
48*14/10/28**4-10-28*

Picklist Print

Thursday, September 25, 2014 1:08:54 PM

Page 1

Work Order ID: 124887

124887

Parent Item: D407-667-105RLC

D407-667-105RI C

Parent Item Name: Fwd Crosstube - High 407

Start Date: 9/25/2014

Required Date: 9/25/2014

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP REV:A 14.09.24 NEW ISSUE II VERF:DD

| Component Item ID/ Item Name | Replacement Item ID | Mfg/ Purch | Bin Item | Primary Location | Last Location | Route Seq ID | Unit of Measure | Qty on Hand | Qty per Kit | Total Qty | Qty Issued | Date Issued | Status |
|---------------------------------|------------------------|---------------|-------------|---------------------|------------------|-----------------|--------------------|----------------|-------------|--------------|---------------|----------------|--------|
|---------------------------------|------------------------|---------------|-------------|---------------------|------------------|-----------------|--------------------|----------------|-------------|--------------|---------------|----------------|--------|

D206-667-017

Manufactured No

Each 9.0000

1 DAS

D206-667-017

41

Ground Strap Installation

9-89

14-10-10

Location 125463

Loc Qty

Loc Code

FG

2

102581

2

LG050

7

107968

5

97504

2

AN5-32A

Purchased No

250 Each

271.0000

4

4

AN5-32A

DAS

28

9-89

OCT 21 2014

Bolt

DAS
06
9-89

Location

Loc Qty

Loc Code

ST336

271

124215

80

m127363

4

m128403

66

m128634

121

D407-667-105TRN

Manufactured No

110 Each

5.0000

1

1

D407-667-105TRN

Crosstube Turning Detail

Location

Loc Qty

Loc Code

LG014

5

116476

1

120868

1

120869

1

120870

1

120871

1

① JW 14-09-30

Picklist Print

Thursday, September 25, 2014 1:08:54 PM

Page 2

Work Order ID: 124887

124887

Parent Item: D407-667-105RLC

D407-667-105RI C

Parent Item Name: Fwd Crosstube - High 407

Start Date: 9/25/2014

Required Date: 9/25/2014

Start Qty: 1.00

Required Qty: 1.00

D2873-043

Manufactured No

230

Each

44.0000

2

2

D2873-043

Nut Plate Assembly

CR-14.10.08

Location

Loc Qty

Loc Code

LG052

44

107964

4

113050

32

114550

8

2

D2873-045

Manufactured No

230

Each

47.0000

2

2

D2873-045

Nut Plate Assembly

CR 14.10.08

Location

Loc Qty

Loc Code

LG052

47

113144

7

113886

40

2

D2891-1

Manufactured No

230

Each

34.0000

2

2

D2891-1

Support 2.25

DAS
41
9-89

14-10-9

Location

Loc Qty

Loc Code

FG

2

84164

2

LG014

22

113044

1

114948

21

LG052

10

120972

10

2

Picklist Print

Thursday, September 25, 2014 1:08:54 PM

Page 3

Work Order ID: 124887

124887

Parent Item: D407-667-105RLC

D407-667-105RI C

Parent Item Name: Fwd Crosstube - High 407

Start Date: 9/25/2014

Required Date: 9/25/2014

Start Qty: 1.00

Required Qty: 1.00

D3595-063-395

Manufactured No

230 Each

217.0000 4 4

DAS

D3595-063-395

Rubber Cushion

41

9-89 14-10-9

Location

Loc Qty

Loc Code

FG

5

87353

5

LG051

212

110958

6

114243

6

115027

100

115737

100

2

2

MS21920-20

Purchased

No

Each

223.0000

4

DAS

MS21920-20

Clamp

41

9-89 14-10-9

Location

Loc Qty

Loc Code

FG

2

122254

2

LG050

221

m126266

1

m127225

4

m128429

1

m128650

215

4

Thursday, September 25, 2014 1:08:54 PM

Shop Packet Print

Page 3

Picklist Print

Thursday, September 25, 2014 1:08:54 PM

Page 4

Work Order ID: 124887

124887

Parent Item: D407-667-105RLC

D407-667-105RI C

Parent Item Name: Fwd Crosstube - High 407

Start Date: 9/25/2014

Required Date: 9/25/2014

Start Qty: 1.00

Required Qty: 1.00

MS20601-AD4W10

Purchased

No

230

Each

507.0000

14

14

MS20601-AD4W10

RIVET

CR 14.10.08

Location

Loc Qty

Loc Code

LG050

432

M127301

30

M127578

2

M128594

100

M128701

300

LG051

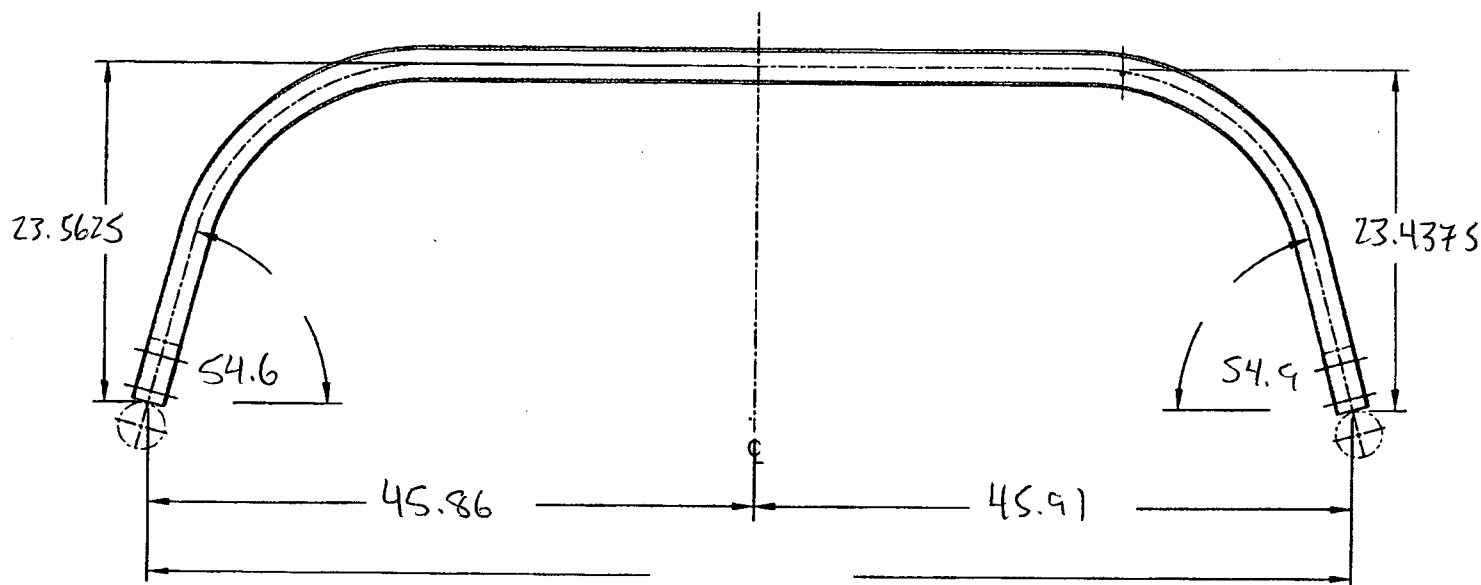
75

M128718

75

| | |
|---|----------------------------------|
| DART AEROSPACE LTD | Work Order: 124887 |
| Description: Crosstube High Fwd (407) | Part Number: D407-667-105 |
| Inspection Dwg: D407-667-145 Rev: C | Page 1 of 1 |

| Required Dimension | Min | Max |
|--------------------|-------|-------|
| Height | 23.41 | 23.67 |
| 1/2 Span | 45.81 | 46.07 |
| Angle | 54 | 56 |
| Total Span | 91.62 | 92.14 |
| Bending Passes | 6 | -- |
| Crushing | -- | 6% |



| | Side A | Side B |
|----------------|--------|--------|
| Bending Passes | 12 | 13 |
| Crushing | 4.3% | |
| Comments | | |
| | | |
| | | |
| | | |
| | | |
| | | |

| | |
|-----------------|--------------------|
| QC15 Inspection | <i>[Signature]</i> |
| Date | 14-10-1 |

| Rev | Date | Change | Revised by | Approved |
|-----|----------|---|-----------------------|--------------------|
| A | 07.02.06 | New Issue | KJ/JM | |
| B | 09.11.12 | Dimensions updated per Dwg Rev C | KJ | |
| C | 12.04.16 | Added bending, crushing dimensions | KJ | |
| D | 12.10.30 | Revised Total Span dimensions & Dwg Rev | KJ <i>[Signature]</i> | <i>[Signature]</i> |

| Item | Qty -145 | Part Number | Description |
|------|-------------|----------------|--|
| 1 | X | D407-667-145 | CROSSTUBE ASSEMBLY (407 HIGH FWD) |
| 2 | 1 | D6010-115 | CROSSTUBE |
| 3 | 2 | D2873-043 | NUT PLATE |
| 4 | 2 | D2873-045 | NUT PLATE |
| 5 | 2 | D2891-1 | SUPPORT |
| 6 | 4 | D3595-063-395 | RUBBER CUSHION |
| 7 | 4 | MS21920-20 | CLAMP (OR MS21920-21) |
| 8 | 14 | MS20601AD4W10 | RIVET (OR NAS9302B-4-10) |
| 9 | A/R | MAGNOBOND 6398 | ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299- 947-100, TYPE II, CLASS 2 ADHESIVE) |

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6010-115
FINISHED LENGTH = 113.20±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D407-667-145" AND BATCH NUMBER ON
INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 17.8 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY,
TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 6 PASSES. MAXIMUM TUBE FLATTENING DUE
TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER
QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-20 CLAMPS (OR -21) WITH D3595-063-395 RUBBER CUSHIONS TO SECURE
THE D2891-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS
ARE LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE
OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS
SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT
LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN
SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 124887 MLS
140925

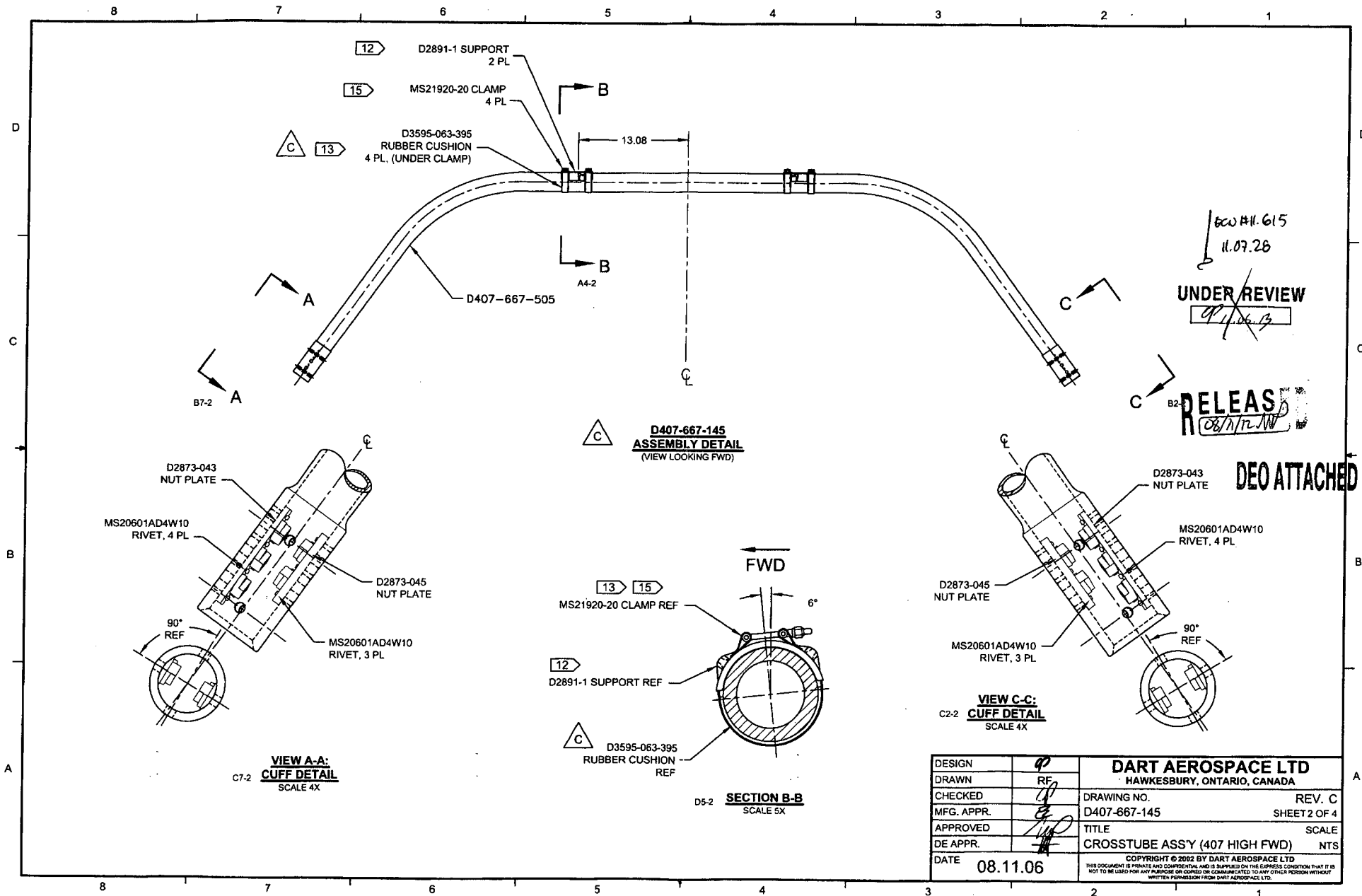
DEO ATTACHED

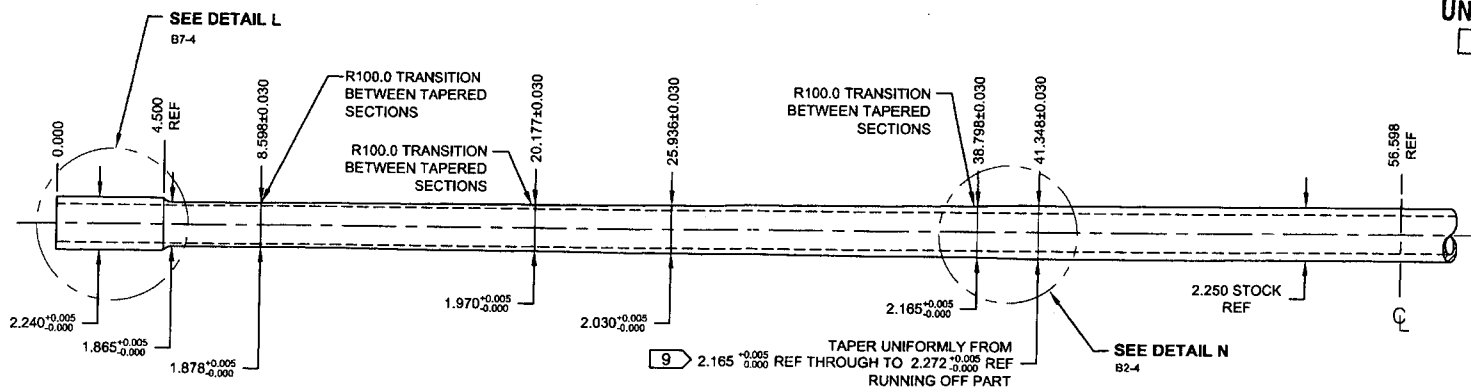
ECW #11-615
11.07.26

UNDER REVIEW

RELEASED
08/11/12

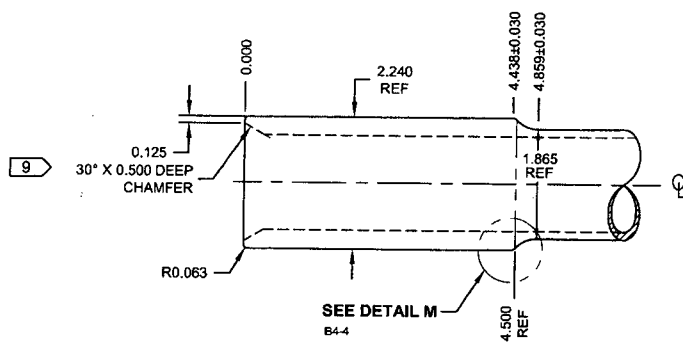
| | | | |
|------------|---|---|--------------|
| C | REVISE GENERAL NOTES/PART LIST (ZN D7-1); REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS. D3595-063-395 WAS D2856-400-694 (ZN D6-2 & A5-2); REMOVED REF. 7 ADD TOLERANCES (ZN C6-3, C4-3, D2-3); RELOCATED FLAG #6 (ZN A8-3) PER NCR 210; MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4. | RF | 08.11.06 |
| B | ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKUDTUBES | PH | 05.07.26 |
| A | NEW ISSUE | CP | 02.05.08 |
| REV. | DESCRIPTION | BY | DATE |
| DESIGN | RF | DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA | |
| DRAWN | RF | DRAWING NO. | REV. C |
| CHECKED | RF | D407-667-145 | SHEET 1 OF 4 |
| MFG. APPR. | RF | TITLE | SCALE |
| APPROVED | RF | CROSSTUBE ASS'Y (407 HIGH FWD) | NTS |
| DE APPR. | RF | COPYRIGHT © 2002 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR DISCLOSED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD. | |
| DATE | 08.11.06 | | |



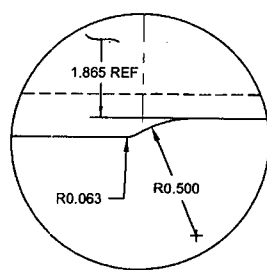


UNDER REVIEW
 CP 11.08.13
 601 A11.615
 1.07.26

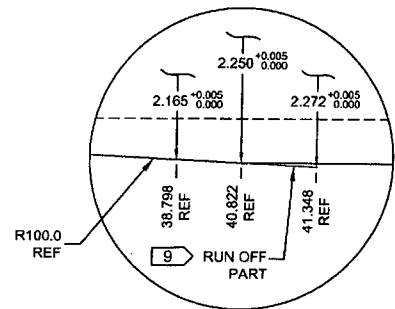
TURNING DETAIL



**DETAIL L:
CROSSTUBE CUFF**
 D7-4 NOT TO SCALE



**DETAIL M:
CUFF TRANSITION**
 B6-4 NOT TO SCALE



**DETAIL N:
TAPER RUN-OFF**
 C3-4 NOT TO SCALE

DEO ATTACHED
RELEASED
 08/11/2006

| | | | |
|------------|----------|--|--------------|
| DESIGN | CP | DART AEROSPACE LTD | |
| DRAWN | RF | HAWKESBURY, ONTARIO, CANADA | |
| CHECKED | CP | DRAWING NO. | REV. C |
| MFG. APPR. | CP | D407-667-145 | SHEET 4 OF 4 |
| APPROVED | CP | TITLE | SCALE |
| DE APPR. | CP | CROSSTUBE ASS'Y (407 HIGH FWD) | NTS |
| DATE | 08.11.06 | COPYRIGHT © 2002 BY DART AEROSPACE LTD <small>THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESSED CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSES OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small> | |

| | | | | | | | |
|-----------------------------|---|-------------------------|---|--|--------------------------------|---------------------------|--------------|
| DRAWING NO. D407-667-145 | TITLE CROSSTUBE ASS'Y (407 HIGH FWD) | REV. C | DART AEROSPACE LTD ENGINEERING ORDER | | D.E.O. NO. D407-667-145-C-1 | SHEET NO. SHEET 1 OF 1 | SCALE NTS |
| DRAWN <i>qp</i> | CHECKED <i>ASS</i> | MFG. APPR. <i>IB</i> | APPROVED <i>WD</i> | | DE APPR. <i>W</i> | | |
| DATE 11.07.15 | DATE 11.07.22 | DATE 11.07.22 | DATE 11/07/22 | | DATE 11.07.21 | | |

PURPOSE:

REPLACE MAGNOBOND WITH PROSEAL.

CHANGE:

IS:

| Item | Qty -145 | Part Number | Description |
|------|-------------|-----------------|-------------------------------|
| 9 | A/R | PROSEAL 890 B-2 | SEALANT, AMS-S-8802 CLASS B-2 |

WAS:

| | | | |
|---|-----|----------------|---|
| 9 | A/R | MAGNOBOND 6398 | ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE) |
|---|-----|----------------|---|

NOTE 12 & 15, SHEET 1 IS AMENDED AS FOLLOWS:

IS:

- 12) TO INSTALL D2891-1 SUPPORT: ABRASE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04" TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. **PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.**

WAS:

- 12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

RELEASED
2011-07-28
WD

| | | | | | | | |
|-----------------------------|---|------------------|---|--|--------------------------------|---------------------------|--------------|
| DRAWING NO. D407-667-145 | TITLE CROSSTUBE ASS'Y (407 HIGH FWD) | REV. C | DART AEROSPACE LTD ENGINEERING ORDER | | D.E.O. NO. D407-667-145-C-2 | SHEET NO. SHEET 1 OF 1 | SCALE NTS |
| DRAWN AJS | CHECKED A | MFG. APPR. E | APPROVED AP | | DE APPR. H | | |
| DATE 12.08.02 | DATE 12.08.02 | DATE 12.08.02 | DATE 12.08.02 | | DATE 12.08.02 | | |

PURPOSE:

ADD ELECTRICAL GROUNDING STRAP

CHANGE:

| ITEM | QTY -145 | PART NUMBER | DESCRIPTION |
|------|-------------|---------------|-----------------------------------|
| 1 | X | D407-667-145 | CROSSTUBE ASSEMBLY (407 HIGH FWD) |
| ⚡ | | | |
| 10 | 2 | AN742D36 | CLAMP |
| 11 | 2 | MS9165-05 | ANGLE BRACKET |
| 12 | 2 | MS21042L3 | NUT (OR MS21042-3) |
| 13 | 2 | MS27039-1-08 | SCREW |
| 14 | 4 | NAS1149C0332R | WASHER (OR AN960C10L) |

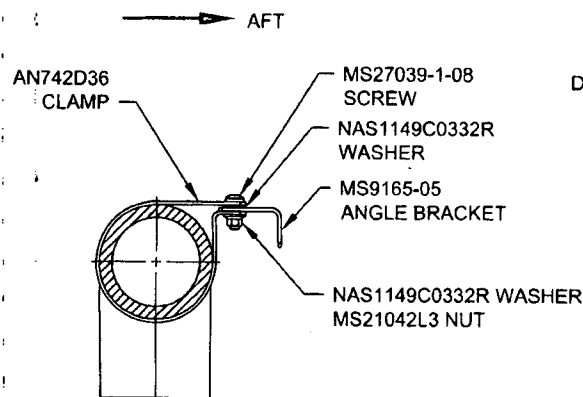
ADD

GENERAL NOTES:

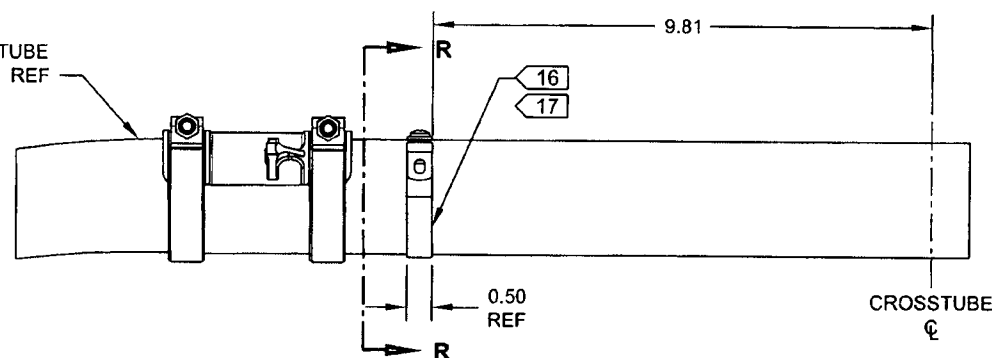
- 16) MASK AREA UNDER CLAMP PRIOR TO PAINTING
- 17) SEAL EDGES WHERE AN742D36 CLAMP MEETS WITH THE CROSSTUBE USING SIKAFLEX-241/-291 OR MIL-S-8802 CLASS B2 OR PROSEAL 890 SEALANT
- 18) PERFORM RESISTANCE CHECK TO ENSURE MAX RESISTANCE IS 10 MILLIOHMS

ADD

RELEASED
CP 12.08.17
ECN 12-631



SECTION R-R



DETAIL P
BONDING STRAP INSTALLATION 2 PL

DART SERVICE INSTRUCTION

TO AMEND INSTRUCTIONS FOR CONTINUOUS AIRWORTHINESS ICA-D206-667 Rev. 3 OR LATER
REF. CANADIAN STC: SH01-5
REF. FAA STC: SR01304NY
REF. EASA STC: EASA.IM.R.S.01179

PURPOSE:

The supports on the following crosstubes are now installed using Proseal instead of Magnobond:

D206-667-101 @ CHG 004
D206-667-103 @ CHG 005
D206-667-107 @ CHG 002
D206-667-201 @ CHG 004

D206-667-203 @ CHG 004
D206-667-207 @ CHG 002
D407-667-105 @ CHG 004

CHANGE:

For the crosstubes listed above, section 32.4 of ICA-D206-667 is amended as follows. Use Figures 32-4 to 32-8 of ICA-D206-667 for further reference. For crosstubes of an earlier change number, it is recommended that if the supports are removed, the supports should be reinstalled using the procedure listed below.

32.4 SUPPORT INSTALLATION





- 32.4.1 Locate the area on crosstube for installation of support (ref. Figures 32-4 to 32-8 of ICA-D206-667). For D206-667-101/-103/-107/-201 and D407-667-105 crosstubes, the outward face of the support tabs should be 13.08" (332mm) from the crosstube center. For D206-667-203/-207 crosstubes, the outward face of the support tabs should be 10.03" (255mm) from the crosstube center. Ensure paint finish of crosstube is intact; touch up as required per Chapter 5 (5.3.9) of ICA-D206-667.
- 32.4.2 If present, remove any paint/primer on bottom of supports. Abrade mating surfaces of support and crosstube with 400-grit sandpaper. Saturate a clean cloth with MEK or 4105S Wash'n'Wipe Degreaser or equivalent and wipe until there is no residue.
- 32.4.3 Ensure a layer of 3M Scotch-Weld 2216 B/A Epoxy Adhesive is on the bottom of the support. If required, either apply or touch-up support to have a 0.03" to 0.05" thick layer of adhesive over the entire mating surface. Allow supports to cure for 24 hours.
- 32.4.4 Abrade mating surfaces of support (after cure) and crosstube with 180-grit sandpaper. Saturate a clean cloth with MEK or 4105S Wash'n'Wipe Degreaser or equivalent and wipe until there is no residue.
- 32.4.5 Apply a 0.04" to 0.07" thick layer of Proseal 890 Class B or AMS-S-8802 Class B sealant underneath applicable support and install support.
- 32.4.6 Install the clamps opposite to crosstube support as shown in Figures 32-4 to 32-8 of ICA-D206-667. Install rubber cushions underneath each clamp around the bottom circumference of the crosstube up to the crosstube centerline. Torque clamps 80-100 in·lb (9.0-11.3 Nm). It is acceptable to use smaller or larger sized MS21920-XX clamps than those listed in ICA-D206-667, ensure that after torquing the clamps per this instruction, the nuts are in safety but not bottomed out.
- 32.4.7 Prior to installing crosstube on aircraft, allow supports to cure for 72 hours and recheck torque on clamps.

CANADA
DEPARTMENT OF TRANSPORT
AIRCRAFT CERTIFICATION
BRANCH
DAO # 01-O-01

APPROVED

BY: 
D. SHEPHERD (DE # 02)

DATE: 11.07.20
CERT. NO.: SH01-5
ISSUE NO.: 3

| | | | |
|------------|---|---|--------------|
| A | NEW ISSUE | CP | 11.07.15 |
| REV. | DESCRIPTION | BY | DATE |
| DESIGN |  | DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA | |
| DRAWN |  | | |
| CHECKED | ASS | DRAWING NO. | REV. A |
| MFG. APPR. | N/A | DSI 9565 | SHEET 1 OF 1 |
| APPROVED |  | TITLE | SCALE |
| DE APPR. |  | SUPPORT INSTALLATION CHANGE | NTS |
| DATE | 11.07.15 | COPYRIGHT © 2011 BY DART AEROSPACE LTD <small>THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small> | |

DART SERVICE INSTRUCTION

TO AMEND INSTALLATION INSTRUCTIONS IIN-D206-667 REV. D AND EARLIER AND
INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA-D206-667 REV. 3 AND EARLIER

REF: CANADIAN STC: SH01-5

REF: FAA STC: SR01304NY

REF: EASA STC: EASA.IM.R.S.01179

PURPOSE:

The purpose of this service instruction is to permanently add the D206-667-017 Kit to the DXXX-667-101/-103/-105/-107 Crosstube kits.

INSTRUCTIONS:

DXXX-667-101/-103/-105/-107 Crosstubes at CHG 005/006/005/003 (respectively) and later are supplied with the D206-667-017 Grounding Strap Kit installed per section 3.2 of IIN-D206-667 Rev. D.

WEIGHT AND BALANCE




There is a negligible weight change associated with the installation of this kit.

CANADA
DEPARTMENT OF TRANSPORT
AIRCRAFT CERTIFICATION
BRANCH
DAO # 01-O-01

APPROVED

BY: 
D. SHEPHERD (DE # 02)

DATE: 12.08.02
CERT. NO.: SH01-5
ISSUE NO.: 3

| | | | |
|------------|---|--|--------------|
| A | NEW ISSUE (REF CIR 12-3) | AJS | 11.08.02 |
| REV. | DESCRIPTION | BY | DATE |
| DESIGN | AJS | DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA | |
| DRAWN | AJS | | |
| CHECKED |  | DRAWING NO. | REV. A |
| MFG. APPR. | N/A | DSI 9628 | SHEET 1 OF 1 |
| APPROVED |  | TITLE | SCALE |
| DE APPR. |  | GROUNDING STRAP INSTALLATION | NTS |
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407-667-105 Folio

Setup

Use 1.6" spacers under 2.25 rollers

2.935" (2.875 + one .060 shim) for SA,, 2.995 (2.875 + two .060)shims for SB Spacer in buggy on large table/adjust supporting rollers as required.

19.25", **36.4" RED** from cuff, centerline is @ 56.6

LARGE TABLE

Run programs 407f 01-07 without stopping going down the taper, **36.4" line**, approaches are Y 3200 and W 1750. CHECK

Then run programs 407f 10-16 without stopping from **19.25" line**. "CHECK" approaches are Y 3500 and W 3200 for all programs running up taper, . Programs 17 and up are to finish tube off if necessary. CHECK between each program.. **Large table**

in order to reduce the height, increase cuff angle at program 7. tubes are still finishing too high. jw 11-08-26

- update: increased power on step 9 of prog 7 by 20 points. tubes are finishing at prog 19. height fixed.

12-08-01 after program 7 on both tubes, side "B" had bent in substantially more than side "A". approximately 4" more than the first side. tubes both turned out okay, but were watched closely on the second side.

13-02-14 Bent 2 as per folio.. (1-7 CHECK.. 10-16 CHECK).. ran 17, 18, 19, 20... checking between each, 1st tube finished on 20, 2nd finished on 19..... (run 18a if really close to finished tangent line) MO

| | |
|----|----|
| 1 | 1 |
| 2 | 2 |
| 3 | 3 |
| 4 | 4 |
| 5 | 5 |
| 6 | 6 |
| 7 | 7 |
| 8 | 8 |
| 9 | 9 |
| 10 | 10 |
| 11 | 11 |
| 12 | 12 |
| 13 | 13 |
| 14 | 14 |
| 15 | 15 |
| 16 | 16 |
| | 17 |

1/14



Tail#:

SKYM046-18 Rev 1 Apr/12



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID PO26038

Purchase Order Date 10/7/2014

PO Print Date 10/7/2014

Page Number 3 of 3

Order From :

VC-SKY001

Ship To : DART AEROSPACE LTD

SKYSERVICE
6120 MIDFIELD ROAD
MISSISSAUGA, ONTARIO L5P 1B1
CANADA

1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Contact Name

Vendor Phone 905-678-5636

Ship To Contact

Ship To Phone

Ship Via: Delivered

Ship Acct:

Buyer

Customer POID

Customer Tax # 10127-2607

Terms Net 30

Currency CAD

FOB FCA - (Free Carrier)

Line Total: \$0.0

6 124887

D407-667-105RLC
CROSSTUBE

10/7/2014

1.00

\$0.00

\$0.0

Yes

10/7/2014

LIQUID PENETRANT INSPECTION AS PER QSI 038 OR
LPI AS PER ASTM 1417 LEVEL 2

Line Total: \$0.0

7 124888

D407-667-105RLC
CROSSTUBE

10/7/2014

1.00

\$0.00

\$0.0

Yes

10/7/2014

LIQUID PENETRANT INSPECTION AS PER QSI 038 OR
LPI AS PER ASTM 1417 LEVEL 2

Line Total: \$0.0

PO Total: \$0.0

CL
Note: Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

Change Nbr: 2

Change Date: 10/7/2014